

of data processing and operations. For example, the processor **210** may be embodied as a system on chip (SoC). The processor **210** may further include a graphic processing unit (GPU) and/or an image signal processor. The processor **210** may also include at least some of the elements illustrated in FIG. 2 (e.g., a cellular module **221**). The processor **210** may load, in a volatile memory, instructions or data received from at least one of the other elements (e.g., a non-volatile memory), may process the loaded instructions or data, and may store result data in the non-volatile memory.

[0072] The communication module **220** includes the cellular module **221**, a WiFi module **223**, a Bluetooth module **225**, a GNSS module **227**, an NFC module **228**, and an RF module **229**.

[0073] The cellular module **221** may provide a voice call, a video call, a text message service, an Internet service, etc., through a communication network. The cellular module **221** may identify and authenticate the electronic device **201** within a communication network using the SIM card **224**. The cellular module **221** may perform at least some of the functions that the processor **210** may provide. The cellular module **221** may include a CP.

[0074] At least two of the cellular module **221**, the Wi-Fi module **223**, the BT module **225**, the GNSS module **227**, and the NFC module **228** may be included in one Integrated chip (IC) or IC package.

[0075] The RF module **229** may transmit/receive a communication signal (e.g., an RF signal). The RF module **229** may include a transceiver, a power amp module (PAM), a frequency filter, a low noise amplifier (LNA), an antenna, etc.

[0076] At least one of the cellular module **221**, the WiFi module **223**, the BT module **225**, the GNSS module **227**, and the NFC module **228** may transmit/receive an RF signal through a separate RF module.

[0077] The SIM card **224** may be an embedded SIM, and may contain unique identification information (e.g., an integrated circuit card identifier (ICCID)) or subscriber information (e.g., international mobile subscriber identity (IMSI)).

[0078] The memory **230** includes an embedded memory **232** and an external memory **234**. The embedded memory **232** may include at least one of a volatile memory (e.g., a dynamic random access memory (DRAM), a static random access memory (SRAM), a synchronous DRAM (SDRAM), etc.) and a non-volatile memory (e.g., an one time programmable read only memory (ROM) (OTPROM), a programmable ROM (PROM), an erasable PROM (EPROM), an electrically erasable PROM (EEPROM), a mask ROM, a flash ROM, a flash memory, a hard disc drive, or a solid state drive (SSD)).

[0079] The external memory **234** may include a flash drive, a compact flash (CF), a secure digital (SD), a Micro-SD, a Mini-SD, an eXtreme digital (xD), a multi-media card (MMC), a memory stick, etc. The external memory **234** may be functionally or physically connected to the electronic device **201** through various interfaces.

[0080] The sensor module **240** may measure a physical quantity or detect the operating state of the electronic device **201**, and may convert the measured or detected information into an electrical signal. The sensor module **240** includes a gesture sensor **240A**, a gyro sensor **240B**, an atmospheric pressure sensor **240C**, a magnetic sensor **240D**, an acceleration sensor **240E**, a grip sensor **240F**, a proximity sensor

**240G**, a color sensor **240H** (e.g., an RGB sensor), a biometric sensor **240I**, a temperature/humidity sensor **240J**, an illumination (or light) sensor **240K**, and a ultraviolet (UV) sensor **240M**.

[0081] Additionally or alternatively, the sensor module **240** may include an e-nose sensor, an electromyography (EMG) sensor, an electroencephalogram (EEG) sensor, an electrocardiogram (ECG) sensor, an infrared (IR) sensor, an iris sensor, and/or a fingerprint sensor. The sensor module **240** may also include a control circuit for controlling one or more sensors included therein.

[0082] The electronic device **201** may also include a processor configured to control the sensor module **240** as a part of, or separately from, the processor **210** and may control the sensor module **240** while the processor **210** is in a sleep state.

[0083] The input device **250** includes a touch panel **252**, a (digital) pen sensor **254**, a key **256**, and an ultrasonic input device **258**. The touch panel **252** may be at least one of a capacitive type, a resistive type, an infrared type, and an ultrasonic type. Further, the touch panel **252** may further include a control circuit. The touch panel **252** may further include a tactile layer to provide a tactile reaction to a user.

[0084] The (digital) pen sensor **254** may include a recognition sheet that is a part of, or separate from, the touch panel.

[0085] The key **256** may include a physical button, an optical key, or a keypad.

[0086] The ultrasonic input device **258** may detect ultrasonic waves, which are generated by an input tool, through a microphone **288** to determine data corresponding to the detected ultrasonic waves.

[0087] The display **260** includes a panel **262**, a hologram device **264**, a projector **266**, and/or a control circuit for controlling the panel **262**, the hologram device **264**, and/or the projector **266**.

[0088] The panel **262** may be implemented to be flexible, transparent, and/or wearable. The panel **262**, together with the touch panel **252**, may be configured as one or more modules.

[0089] The hologram device **264** may show a three-dimensional image in the air using interference of light.

[0090] The projector **266** may display an image by projecting light onto a screen. The screen may be located in the interior of, or on the exterior of, the electronic device **201**.

[0091] The interface **270** includes an HDMI **272**, a USB **274**, an optical interface **276**, and a D-subminiature (D-sub) **278**. Additionally or alternatively, the interface **270** may include a mobile high-definition link (MHL) interface, an SD card/multi-media card (MMC) interface, or an infrared data association (IrDA) standard interface.

[0092] The audio module **280** may convert a sound into an electrical signal, and vice versa. The audio module **280** may process sound information that is input or output through, for example, a speaker **282**, a receiver **284**, earphones **286**, the microphone **288**, etc.

[0093] The image sensor module **291** is a device that may photograph a still image and a moving image. The image sensor module **291** may include one or more image sensors (e.g., a front sensor or a back sensor), a lens, an image signal processor (ISP), or a flash (e.g., an LED or xenon lamp).

[0094] The power management module **295** may manage the power of the electronic device **201**. The power manage-